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EDITORIAL



Christmas Greetings

With the arrival of the month of December comes thoughts of Christmas and the end of another year's work. Ordinary day by day worries, the trials and tribulations of commerce, the rush and bustle of our very existence give way to the atmosphere of Christmas with the traditional exchange of greetings one to another all over the world. Business care abandoned, some of us enter the holiday period with that freedom of thought to do what we want with our time, to enjoy the comfort of our friends and families, to rejoice with our fellow beings in the activities of the festive season, and to crowd into the holiday every happy minute we can muster.

For many Amateurs it is the time for completing those unfinished pieces of equipment; for re-building projects that for the past months have been merely a rough plan committed to a piece of paper poked away in a magazine or the corner of the desk drawer; for construction of the new "rig," the beam, the converters, the v.f.o., the dozen and one pieces of equipment for which the component parts have been so zealously saved for during the year when time did not permit of doing the

practical work. It is the time for which many of us have looked forward with a keen and calculating mind when much will be done to enable us to greater enjoy our hobby the next year.

For those who have found the time throughout the year to build portable or mobile equipment, it is the time for holidaying in the open where the fun of being free can be enjoyed with the family and friends together with the opportunity to try out the new gear.

But whilst many can play, some will work. Communications must be maintained, public services must continue to function, broadcasting services must continue dispensing entertainment to listeners, essential industry must maintain production. But in every walk of life the Christmas spirit will prevail.

And so to all Amateurs—wherever they may be, on land or sea or in the air—the Wireless Institute of Australia sends to them the same old words, "A MERRY CHRISTMAS," and may you—and all those associated with you—enjoy to the full the festive season.

—FEDERAL EXECUTIVE

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TELEVISION MADE EASY

Part iv.—What's in a Television Receiver?

BY KEN WALL AND JOHN JARMAN,* VK3ADA

What, no circuit diagram? Was I too lazy to draw one? Well, maybe, but actually, there are two good reasons why no diagram of a complete receiver has been included. Firstly, such diagrams are regularly published in quite a number of magazines, imported from both England and U.S.A., and the object of these articles is not to duplicate what is already available in other literature, but to bridge the "gap" between the television data in current magazines and the standard of training of the average Ham.

Secondly, the design of television receivers is making such rapid progress that new circuits come out almost daily, the object being, of course, to simplify construction, for the sake of economy, without spoiling the quality of reception.

The receiver circuits used today are therefore likely to be out of date by the time television is established in Australia, so we shall confine these articles to the operating principles which will always apply, irrespective of changes in circuit. All agreed?

For the benefit of readers who already possess imported literature on television receivers, it may be as well at this stage to note how overseas television systems differ from that in Australia.

The English system uses positive modulation (i.e. the brighter the picture, the greater the carrier amplitude). 405 lines per picture, and carrier frequencies around 50 Mc. The sound is also transmitted by amplitude modulation, instead of frequency modulation, and on a frequency lower than that of the picture signal. The radio waves are also vertically polarised, whereas in Australia they will be horizontally polarised.

The American system differs from ours by using 525 lines per picture and a field frequency of 60 per second.

The effects of these points of difference on design of the receiver will be explained, as we deal with the appropriate section.

So much for that introductory "burst," let's now get down to business, and study a typical television receiver. We have already learnt that our receiver must be capable of receiving frequencies around 200 Mc. (remember the last article?)

Furthermore, each television transmission occupies a bandwidth of 7.5 Mc. and consists of two carriers 6 Mc. apart. The upper one is frequency modulated by the sound signals, and the lower one, amplitude modulated by picture and controlling signals.

Now cock your eye over Fig. 1. This receiver is a superhet type, and although r.f. receivers can be used (and are quite popular in England), we will probably find that here in Australia, where the carrier frequencies will range

from 180-204 Mc., the superhet circuit will be necessary for better stability, so this is what we will discuss.

Remembering that a single television channel occupies a bandwidth of 7.5 Mc., the aerial and r.f. amplifier must be types capable of accepting this wide range of frequencies and, of course, suitable for the high frequencies used. The r.f. amplifier is therefore broadly tuned to bring in both the picture and sound signals (which are 6 Mc. apart) and pass them on to the mixer, where they are separated, to produce two different i.f.s. If the receiver is intended to pick up more than one station, "tuning" is accomplished by a selector switch, which brings in a different pre-tuned r.f. and oscillator circuit for each channel. We don't use tuning gangs like one finds in a broadcast receiver.



The sound i.f. is frequency modulated, so that the sound section is a typical f.m. receiver, which will be described in a later article.

The picture, or "vision" i.f. amplifier consists of a number of broadly tuned stages, and is followed by the detector, which separates the modulating signal from the carrier. In the case of sound, we would call this the "audio" signal, but with vision, we call it a "video" signal. This is simply a Latin word meaning "I see," just as audio means "I hear."

Video amplifier, of course, amplifies the detector's output, but my goodness! "What the — is a d.c. restorer when it's at home?" Well, it's like this. The audio output of a sound detector is entirely alternating current. Correct? Now the output from a vision detector is not pure a.c., but pulsating d.c., which is a combination of a.c. and d.c. The a.c. component represents the picture detail, and the d.c. component the average light and shade. For example, the difference between dusk and bright sunlight.

The video amplifier, however, will not handle d.c. It amplifies the a.c. component and "leaves the d.c. behind," so the d.c. restorer is a device for "artificially" replacing the d.c. component of the signal which is "lost" in the video amplifier.

The modern trend, by the way, is to omit the video amplifier and d.c. restorer and feed the detector's output directly on to the grid of the c.r.t.

Now we will recall that our video signal is composed of both picture impulses and controlling signals. The picture impulses, of course, are applied to the grid of the cathode ray tube to vary the intensity of the electron beam, thus "painting" the picture, as explained in article one.

The blanking signals also vary the intensity of the electron beam, making the spot invisible between lines and between fields, as we learned in the last article.

The synchronising pulses, however, are required to control the deflection oscillators. Just how they do it is the subject of a later article, but it should be noted that the picture impulses must not be allowed to enter the deflection circuits. We therefore use a synchronising separator, which "clips off" the synchronising pulses and passes them on to the deflection oscillators (putting it briefly), leaving the picture and blanking signals behind.

Before reading any further, study Fig. 1 carefully, and make sure you are clear about the function of each part shown. Revise also the composition of the television signal, explained in the last article, noting carefully the types of signals which our receiver must handle.

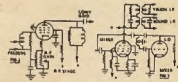
Here's a little test for you. As we will see later, no attempt is made to prevent the synchronising pulses from reaching the grid of the c.r.t. Why? Figure this out.

We shall now deal with each part of the receiver in more detail.

Remember, the diagrams shown are intended purely to illustrate how each part of the receiver does its job, and are not necessarily the circuits that will be used in Australian receivers.

Starting with the r.f. amplifier, its purpose is similar to that in a sound receiver, namely, to improve the signal-interference ratio. Although many text books, through force of habit, call this a "signal-noise" ratio, what they really mean by "noise" is the intermittent marking of the screen, caused by interference.

This stage also serves as an isolator, to prevent oscillating currents from the mixer stage entering the aerial and interfering with adjacent receivers.



One type of r.f. stage is shown in Fig. 2, using an r.f. gain control. Note that this control operates by varying the voltage on the suppressor grid, not that on the control grid, as in sound receivers. This is to permit changes to be made in the amplification of the stage without altering the input impedance.

The next stage could be a converter, but owing to the high frequencies used, we will probably find the mixer-oscillator set-up preferable for stability (see Fig. 3). In any case, however, provision is made for two separate i.f. outputs, one for sound, the other for vision. In this article, we shall concentrate on the latter.

The intermediate frequency always has a high value. In American receivers, it is around 30 Mc. and we'll probably find similar values used here in Australia. In any case, the i.f. amplifier must be capable of evenly amplifying a band of frequencies 6 Mc.

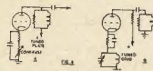
* A11426 L.A.C. Jarman, J.B., c/o S.L. Garden, Box 1424H, G.P.O., Adelaide.

wide, yet it must also be capable of rejecting the sound i.f. which differs from the vision i.f. by only 6 Mc.

The broad response of this amplifier is achieved by using suitable coupling between stages.

Transformer coupling can be used, the required bandpass being obtained by either staggering the tuning, or using damping resistors across each winding.

Alternatively, the damped coupling circuits shown in Fig. 4 may be used.

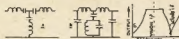


It is most essential that sound signals do not reach the vision detector, as we will learn later when discussing interference.

The i.f. amplifier is therefore provided with "traps" tuned to reject the sound i.f. One type is shown in Fig. 4b.

Perhaps the best form of i.f. coupling is the band-pass filter, two types of which are shown in Fig. 5. These can be adjusted to give a response like that shown in Fig. 5c. The flat portion can be made almost as wide as desired, and in addition, such type of filter can

be made to reject any particular undesired frequency such as the sound i.f. Like everything else, however, this type of coupling has its disadvantages and may not suit all types of receivers.



In our final picture, the contrast between light and shade depends upon the amplification of the signal, so that by varying the amount of amplification in the i.f. stages, we can adjust this contrast.

The simplest method is to use adjustable cathode bias, as in Fig. 4a, though other more complicated forms are often found. The necessity for contrast control will be explained in the next article.

The detector is usually the diode type, but owing to the high value of video frequencies, compared with audio frequencies, its load resistor cannot be by-passed by a simple condenser. Instead, we must use a filter system, but oh my! I'm working overtime!

The detector is the subject of our next article, which will also cover the video amplifier and receiver controls, so until next month, cheerio and 73's, and don't forget to send us your queries!

N.B.F.M. PHASE MODULATOR EXCITER FOR 80, 40, AND 20

(Continued from Page 3)

is applied as a two stage speech amplifier, and the input takes the usual crystal (or other) microphone.

THE FREQUENCY MODULATOR

The only unusual feature of the circuit is the f.m. adjustment condenser C13. This is a capacity of approximately 2 pF. and may be merely two short pieces of insulated wire twisted together for three turns. The arrangement looks like a plate neutralisation connection, but its function is to increase the f.m.

Once installed and adjusted, no further alteration is required. In tuning C16, it is found that the plates will be about four-fifths meshed and need seldom be touched for v.f.o. changes of several hundred kilocycles. A phone monitor circuit is included and although not essential, is useful for checking speech quality.

QUADRUPLER

A 6AG7 (V4) is used as a quadrupler and is capacity-coupled to the anode of the modulator through C18, a 100 pF. mica condenser. It is biased by R13, a 1 megohm resistor in the grid return. The combination of the 150 ohm resistor R14 and 0.01 uF. by-pass condenser in the cathode circuit permits this valve to double, triple or quadruple, with enough excitation for the next doubler. With the c.w. key "up" in the oscillator section, the anode current of V4 is kept to a safe value. 6AG7 valves are not easy to obtain in this country, and if this type is not available, the writer suggests that EF50, 6AC7, or 6SK7 valves may be applied in lieu.

THE POWER DOUBLER

A 6L6 is used in this stage and this takes the output from the preceding buffer, doubler, tripler, or quadrupler.

A 50 pF. variable midgeet condenser (C23) is coupled to the 6L6 grid and provides variation of excitation control. Bias is provided by R17, 100,000 ohms, and the cathode resistor, R19, is 400 ohms. The latter is by-passed by a 0.01 uF. mica condenser. A 50 ohm 1 watt resistor in series with the grid leak and another in the anode circuit are provided for reading the 6L6 grid and anode currents by shunting a milliammeter at these points.

MECHANICAL DETAILS

The diagram of W6EBT's exciter, with the coil specified, shows that the v.f.o. covers between 3488 and 4050 Kc. The main tuning condenser is solidly mounted on angle brackets and operated by a vernier dial with suitable coupling. The v.f.o. coil is shielded to help isolate and eliminate temperature changes. This shield also deflects heat from the other valves.

COIL WINDING DATA

Oscillator—

L1: 104 turns 20 enam., 14" diam., spaced diameter of wire.

L2: 3 turns 20 enam., interwound at "earth" end of L1.

6AG7 F.M.—

L3: 50 turns 31 enam., 1/2" diam., close-wound, tapped at 15 turns from "earth" end (iron core slug, see text).

6AG7—

L4: 80 metres—36 turns 20 enam., 14" diam. closewound.

40 metres—18 turns 20 enam., 14" diam., spaced 1/16" between turns. 20 metres—8 turns 20 enam., 14" diam., 1" long.

6L6—

L5: 80 metres—41 turns 20 enam., 1" diam., closewound.

40 metres—20 turns 20 enam., 1" diam., spaced 1/16" between turns. 20 metres—12 turns 12 enam., 1" diam., spaced diameter of wire. 10 metres—7 turns 12 enam., 1" diam., spaced 1/8".

ALTERNATIVE SUGGESTIONS

As mentioned previously, 6AG7 valves are scarce, but if the reader has any on hand from war surplus equipment, well and good. Other types can be substituted and considerable latitude is permissible, excepting in the case of the 6SL7 audio valves. A 6SN7 can be used, but less audio will be produced; the 6SL7 being a higher gain valve.

The writer's exciter has the v.f.o., which is the series tuned Clapp type, on 160 metres, and the valve used is a 12SJ7. The isolator stage is a 12SK7. The tuned phase modulator is a 12SL7 and the audio input valve one of similar type. Following the modulator is the doubler (to 3.5 Mc.), using a 12A6.

The reason that 12 volt valves are used is simply because they were on hand from disposals gear. In the 6 volt series the valves will be a 6SJ7 v.f.o., 6SK7 isolator, 6SL7 (or 6SN7) modulator, 6SL7 audio, and 6V6G doubler. With an 807 as a p.a. at 20 watts following the exciter, reports on 80 metres are excellent—there is ample deviation available for a.m. receiver reception. With the exciter driving the 40 metre assembly, which has a 6V6G doubler driving an 813 final, the results are all that can be desired. Stations often have to be told that n.b.f.m. is in use.

It will be realised that with appropriate miniature valves, one could make up a very compact phase modulated exciter/transmitter on these lines for all-band coverage. The 12AT7 valve would be a good type in the modulator—audio input. Whatever the reader decides to do—it presents no problem to incorporate a phase modulator-audio combination as shown in the diagram for V3 and V6. Two 6SL7s can be built into any exciter, irrespective of the v.f.o. used. Final emphasis is placed on the advantages of n.b.f.m. These are:

1. Much less initial cost than a.m.
2. Reduction in power consumption—the audio power needed is negligible.
3. More carrier output can be used in the final stage because the valve or valves can be operated at c.w. ratings.
4. Final stage excitation needs are less severe—there are no amplitude peaks to consider and quality of modulation is not affected by the amount of drive available for the final.
5. Tuned circuit and other components in the final stage need only be adequate for c.w. operation.
6. Over-deviation does not have the same effect as over-modulation in a.m.—spurious frequencies are not produced as in "splatter"; the channel simply expands in proportion to the deviation.
7. F.m. practically eliminates broadcast interference of the kind associated with r.f. pickup in the audio channels of receivers.
8. Tunable types of b.c.i. are certainly not worse with f.m., but tend to be less, as the apparent audio on an interfering beat is usually light or even almost inaudible.

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| ● WORSTED YARNS | |

DX NOTES BY VK4QL*

I think the least said about conditions for DX in October would possibly be the better. The radio on 14 Mc. was such that we expected down in VKI in summer time, for 5.5 Mc. Most VKs seem to have the same complaint at this station. Townsville has had practically no run since January, so you can visualise the noise from the mains that goes on at night. ZLIBY said that during the Jubilee Contest the static drove him off 3.5 and 7 Mc. Europeans have almost disappeared off the band here, yet 3CX finds plenty of them in the afternoon. The odd South African is again appearing on 14 Mc. in the late morning, and an increasing number of South Americans are appearing in the afternoon and evenings. 3CX found the evenings quite good, yet here it was almost waste of time switching on 14.

The band survey is as follows, with times in G.M.T.—3.5 Mc. tried this band in the Contest but had no contacts. Wasn't interested in listening to static myself.

7 Mc. This band has been almost useless for DX or interstate. Practically nobody has been heard there mornings or evenings, the DX Contest producing the main activity. ABE, who haunts this band with a fair amount of success, was not so successful this month. At one period he heard 58 signals from the States. Ted worked, amongst others, VPTNM, VSTNG, VBAR, FKCBW, E44 at 0200. Any VK has made 7 Mc. W.A.S. 5UE would like to know, he still needs N. Dak. and Wyo. His countries

score is 58 and still has hopes of 7 Mc. DX C.C. 2DG worked HZIKR, 3VB and FAR. 1BK-1LZ found the band open between 1800 and 2100 on 13th October to Europe, N. Africa and N. and Cent. America. They can still hear Gs to 0730 and QSOs to 0745. 1LZ says 7 Mc. is the poorest band in ZS6AAE, ZS2ET, KJEAR, HKXHD.

14 Mc. 2DG reports nothing outstanding in his contacts during the DX Contest. He lists TIOOE, ISIHM, 3VBEB, MDJJP, MJRGP, CETZQ, 2ACK lists ZS8AK, F88BB, VP5BF Caymans! Art has been looking for FIEZZ, has now reached 205 confirmed. 3CX produces EQJPM, CETZQ, HSIUN, VP4, VP1, Y1, 554, SUIJING, FRZAA, CIB, F88BB, 081. A new correspondent found the band patchy, but is hearing the S. Africans regularly in the afternoons, working a nice catch in ZSAD at 0800. He also lists CROAD, ZS8K, STJAM, MDJPM, KTIDD, PQ8AE, CT2BO, VP5BF, VPAU, and GMY. John said he finds S. America the hardest continent, but agrees he can't have it all ways, when he finds S. Africa so easy. 1LZ-1BK found FIEZZ, KJ8AG, VK1NL, CEMAG, SP7BA, KJUT, JAKUB, LAKKB, GCHFE, Y1BES, Y1KFE, Y1BCU, YVSRZ, VPIAA, HZIKR, VKIHS. You can see by that list conditions in VKI are not so bad. These two "bounds" found the band similar to 3CX in the evenings. 4BG found an improvement in the bands, but still far from good, and lists HSIUN, GOCPC, PQ8AE, TTF, E1AB, and HZIKR. 50W is not happy about conditions either, and like a few others, mourns the notes missing from the October issue of the magazine. Seems a few people are reading these notes, including quite a few DX stations. Gordon added one new country with KJ8AG, 1LZ, FIEZZ, CIBAG, VQ2AB, VQ2GW, ZD1SD, HZ1AR, F88AG, F7JAC, CT1AN, T7FPT, SQRAQ, PQ8AK, 2ABJ, QOICP, QO8AR, IS1FC, 4W1AC, PKTHI. The best catch of the month was 4W1AC in Yemen, who was apparently WYFJ, which is the QSL address. He said he was on by special permission for one hour daily. Has QRT after about one week's operation.

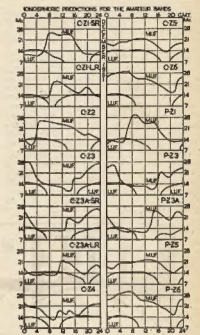
28 Mc. Not much to report, but the band has been improving. Some good DX seemed to have been landed during the DX Contest. Otherwise, it's a matter of being around when the band decides to open. One strange thing I noticed in the C.W. Contest was the fact I could work very little DX, yet VK2, VK4 and ZL stations were audible the whole time. 50W is putting a hefty signal into VKI, and he also worked 5W0WS, who was mobile outside Athens and putting in a good signal.

The "sea" section this month produces that a couple of the S. African boys are going for a holiday and their holiday is intended to bring VQ1AA on for a period in December. HC8QI is expected to operate from Galapagos for a period of one week in December also. F88AD

is reported to be active again. There is a possibility that our "friend," V77AA, is also now using the calls of F88AB and F88AA. The F88 QTH is given as Wallis Is. Has been worked by the W boys, but nothing known of his being heard in VK, which seems to indicate he is "Imey." 3H2 might let us know if CETZQ, Chilean Antarctica, is a separate country. Some stations are now appearing with the KT prefix, and giving the QTH of Tanager. My KT was somewhere in the Pacific. ZLSEF is looking for VK contacts. VPCDI has been advised he won the 1951 Senior B.E.R.U. Contest.

Once again, thanks for assistance gang.
a The thought for the month: "If you have no intention of sending a QSL to the station you are QSOing, play the game, don't say 'I sure QSL'."

PREDICTION CHART FOR DEC., 1951



* F1A1, F. T. Hine, No. 10 (G.R.) Squadron, R.A.A.F., Townsville, Queensland.

DX C.C. LISTING

PHONE

Call	No. Ctr.	Call	No. Ctr.
VK4HE	10 158	VK4WT	15 108
VK4JD	1 158	VK4P	8 114
VK4HR	12 161	VK4WV	10 112
VK4K	1 161	VK4P	10 108
VK4KW	4 148	VK4DO	24 104
VK4BZ	3 141	VK4ADT	15 102
VK4K	1 141	VK4AKA	10 108
VK4L	11 132	VK4PI	19 101
VK4DD	6 128	VK4JOG	18 100
VK4JE	7 128	VK4JG	5 100
VK4WJ	17 121		

C.W.

Call	No. Ctr.	Call	No. Ctr.
VK4BZ	6 163	VK4PH	31 119
VK4PH	15 167	VK4PI	39 118
VK4EL	15 167	VK4K	18 116
VK4HR	8 154	VK4KX	30 114
VK4EO	2 155	VK4DA	7 113
VK4C	15 151	VK4L	28 113
VK4SA	35 150	VK4LZ	17 112
VK4VW	4 143	VK4QL	36 110
VK4QL	5 141	VK4AC	13 107
VK4K	1 138	VK4PY	39 106
VK4RU	18 135	VK4YD	27 106
VK4GW	16 132	VK4YF	34 103
VK4K	15 132	VK4YF	34 103
VK4CX	26 132	VK4JAP	14 101
VK4P	29 129	VK4KNC	19 101
VK4K	15 125	VK4K	28 101
VK4RF	11 125	VK4TR	22 100
VK4DO	20 125	VK4LJ	24 100
VK4JE	31 124	VK4AEZ	35 100
VK4K	3 123	First VL	

OPEN

Call	No. Ctr.	Call	No. Ctr.
VK4BZ	4 202	VK4WV	43 115
VK4HR	7 190	VK4JA	43 114
VK4RU	6 181	VK4ADT	14 113
VK4JE	15 180	VK4V	45 113
VK4HG	3 171	VK4P	47 111
VK4DI	2 170	VK4MM	49 111
VK4K	15 165	VK4K	28 110
VK4KW	13 165	VK4BZ	34 110
VK4EL	19 163	VK4CZ	25 108
VK4P	15 155	VK4Y	11 106
VK4DO	15 151	VK4JAWN	38 106
VK4KS	24 149	VK4VW	18 104
VK4FL	28 148	VK4UL	27 104
VK4MC	5 136	VK4PI	44 104
VK4OP	19 137	VK4P	50 104
VK4DO	22 136	VK4HZ	17 103
VK4L	19 135	VK4K	21 103
VK4JDE	28 133	VK4TI	37 103
VK4AKA	9 128	VK4HS	38 103
VK4V	28 128	VK4DO	43 101
VK4ARM	20 125	VK4TR	31 102
VK4NS	16 123	VK4TY	35 102
VK4HT	41 118	VK4G	46 102
VK4J	33 119	VK4ACK	10 100
VK4LZ	23 116	VK4TG	39 100

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The Eddystone 696 Absorption Wavemeter

We have recently had the opportunity to test the Eddystone 696 Absorption Wavemeter, and after using it for a few days, find it is hardly recognisable with the usual type using the tuned circuit and pea lamp in series as an indicator.

In this instrument, for it is an instrument in spite of its simple circuit, the usual tuned circuit is retained, but it is the sensitivity of the indicating device that makes all the difference.

A Germanium crystal rectifier is used to operate a 0-200 microammeter, in conjunction with a condenser and a series of plug-in coils, covering the range from 1 to 180 megacycles.

The use of the 0-200 microammeter in place of the usual 0-1 milliammeter means that a sensitivity five times as great is attained. It would be possible to use a meter more sensitive again, but a meter such as a 0-50 microammeter, would be so sensitive as to be embarrassing, apart from the risk of damage. It seems, therefore, that the meter chosen offers the best all round results.

Sensitivity is such that full scale deflection can be obtained at distances of five to six inches from a 6J6 oscillator operating on 90 meg., whilst on the lower frequencies, even better sensitivity is found, especially on 80 and 40 metres and lower.

Here are a few of the uses to which this instrument was put in the few days of testing:—

(1) Finding the resonant frequency of grid dip oscillator in the range 1-180 megacycles, its coil ranges, etc.

(2) Checking to see if a receiver oscillator was oscillating.

(3) Finding out what harmonics were being radiated and their relative strengths.

(4) Tracing the frequency, amplitude, and location of an obscure parasitic in the final.



(5) Making the discovery that the Gamma match used to feed the "Plumber's Delight" three element rotary on 10 metres was causing the whole of the metal structure supporting the beam to be alive with r.f.

(6) Checking the feed line for standing waves.

Numerous other uses for the Wavemeter will occur to the reader, but the

few mentioned above will serve as a guide.

The Eddystone type 696 Absorption Wavemeter is built into a small die cast metal box, and is fitted with a small square type 0-200 microammeter, a socket for the plug-in coil is provided, and the variable condenser is fitted with a 0-100 degree dial. A hand calibrated chart is provided for the six plug-in coils, the coils being mounted in a special plug-in base when not in use.

All in all, this meter is a must for any amateur or professional radio man, who does any experimenting with oscillators and transmitter equipment.

We are indebted to R. H. Cunningham Pty. Ltd., 118 Wattletree Road, Armadale, S.E.3, for the opportunity of testing this instrument.

CRYSTAL SWAP

In the last two months' issues we announced that this section would be starting in the magazine. This service will be free to members who wish to exchange a crystal of one frequency for one of another, and will be listed once only.

Members who wish to avail themselves of this service should forward their name, address and call sign, frequency of crystal they wish to swap and frequency of crystal they desire.

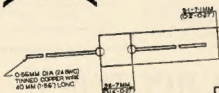
The proprietors of the magazine will accept no responsibility for any crystals, or correspondence. Those desiring to swap should deal direct with one another.

455 Kc. filter crystal; wanted 1600 or 1900 Kc. filter crystal or dual freq. 1000-100 Kc. crystal. E. J. Porrett, VK2AL, 29 Currawang St., Blakehurst, N.S.W.

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TOLERANCE OF CAPACITANCE	Guaranteed not less than —20% of stated values at 20° C. (on values 3.3pF and above). Nom. capacitance below 2.2 pF. Test conditions 10V. RMS. at 120 Kc/s.
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WORKING VOLTAGE	500 Volts D.C. or 250V. RMS. A.C. 20 CPS-60 CPS.
TEST VOLTAGE	1,500 Volts D.C.
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FIFTY MEGACYCLES AND ABOVE

Compiled by J. K. RIDGWAY, VK3CR.

NEW SOUTH WALES

General. The October meeting of the V.H.F. Group was held at Science House on Friday, 5th October. Being no lecture arranged, the evening was given over to discussion and impromptu debate, the question being debated, "That v.f.o.s. increase operating efficiency on the 21st band." At this meeting it was also decided to set a date by which all Sydney stations would vacate the recently set aside 144 Mc. band. Members present were reminded that this zone, 144.0 to 144.1 Mc. is now set aside for the exclusive use of university stations attempting to work into the city area, city stations having agreed to keep this frequency clear of local interference. This agreement comes into force as from the 31st October, 1961.

50 Mc. News. This band has at last decided to behave and interstate contacts have been made earlier than ever before. The band showed signs of opening during the afternoon of 22nd October, both Adelaide and Hobart Beacons coming through very strongly. The band finally opened to VK3 about 2000 hours and continued to be in and out during the rest of the evening. First VK3 to work into VK4 this season was 2XU—Major doesn't miss much on six!

The following day the band was open to VK3 in the morning for about one hour and just after midday 2XU was worked. Again on the 23rd the band was open to VK3. During the evening, VK3s were heard but not worked, our old friend 2XU, ex-2Y, was the first one heard, but just wasn't playing speak! Since then, the band has remained closed, but should brighten up this coming month (Nov.).

The arrival of the DX has not increased the activity on 50 Mc. to any great extent. 2ALU was heard working on the band and 2AZN has returned but otherwise the band population remains much the same as it was before the openings.

144 Mc. News. This band still remains the most popular band and most activity concentrated here. 30A is a new station on the band using 7133 and a four element beam. 30B at times supports on his head! 2SB was heard operating mobile in the Eastwood area. The V.H.F. Group Spring Field Day was held on the 144 Mc. band on Sunday, 25th October, seven stations participating. Despite the small number in the field, a good time was had by all and quite a large number of contacts were made. 2YM went into 2ACA and 2IT to Mt. Tomah, but upon arrival discovered they had left their generator at home—hence the old mod. osc. came into use and the 1143 remained as supercargo! On the last field day, 2ANP, who also went to Mt. Tomah, forgot to take the Tx—maybe this otherwise excellent location should be renamed Mt. Jinx!

On the same day 2JW, of Orange, went to the top of Mt. Canobank in that district and worked 2WH and 2NS. He also heard a signal on the low end of the band which he could not identify. Norm is doing some good work on 144 Mc. and recently journeyed to Sydney complete with 144 Mc. gear which he operated from Eastwood during his stay in the big smoke. 2WH has been able to establish two way contact with Norm 2JW from their home locations and has considerable amount of traffic. 2AMV lost his three over three during the recent wind and at time of writing John seems to be concentrating on 20 Mc. new gear is coming where v.h.f. work is fairly well advanced.

In the Northern Zone 2XO has got his 144 Mc. gear going, along with his "gold plated" line in and out in some of the chaps in that area. Crieft put a signal into

Tamworth, about 145 miles, to 2APF. 2PA at Port Macquarie works 2AHN at Kempsey fairly easily. 2AUY, Taree, is another station with 144 Mc. first contacts.

In Sydney the talk is of bigger and better beams and more power to be able to work some of these country stations. 2ANP has put up a new beam—four over four over four. 2MQ also constructing a new beam. 2AGA has the biggest beam in Sydney—23 elements, consisting of 16 sets of 15 elements, 200 feet apart. With activity on the increase in country districts and gear being improved in the city, the possibility of city to country contacts is brighter. With this power and plenty of gain in the beam 144 Mc. signals will travel a long way, however the signals have to be received on the valve of activities concerned with beams and finals, don't forget to consider the Rx! Nothing could be more ludicrous than a station equipped with a 100 watt Tx of high efficiency, a large multi-element beam with high gain—and a super receiver, Rx or ASV Rx!

216 Mc. News. News of doings on this band is scarce this month as those active on the band so bury themselves that it is almost impossible to make contacts with them on other bands.

2HL has had the loan of Doc Cronan's 876 Mc. gear and has been making contacts with most of the 276 Mc. enthusiasts. Horrie has an ASV Rx of his own but at time of writing has not yet converted it for the band. 2YJ is still demonstrating how it is possible to work out of a hollow; Roy is at present away on a holiday so hasn't been heard. 2ABR, next door neighbour of 2AJZ, has been making good work of his new Rx. No other news to hand—what about it fellows? Could one of you come up for air sometime and pass on the news of activities?

SOUTH AUSTRALIA

To clear up a point re the VK5 V.H.F. Contest. One contact per station each Sunday night is permissible.

The weather charts on the 22nd October showed an inclination for a break through on 144 Mc. due to the cold front covering the whole of southern Australia and as at 2100 hours 2XZC Springs. True to form at 1940 C.S.T. the VK6s broke through. 2RU, 2ALL, 2ABC and others were heard. The band was also open on the 23rd and 25th October. Comparing notes, this is about the first time an opening has occurred in October so there may be some hope for air sometime and pass on the news of activities?

A note from 2BC advises he worked 2RU and 2ALL on 22nd and 2ANP at 1000 hours on 23rd, also 2JL at 1230 p.m. In the evening he worked 2ABC, 2RU and 2AQR. 2BC's notes for short time on 25th. 2BMA is dabbling with f.m., bemoaning the fact he missed the break through. 2OT in Broken Hill has copied 2BC's signal there OK. So far 2DQ has only a Rx going, will be on 56.4 with p.p. 807s soon. This broken Hill may be a bit of a 2DQ copier. 2JD when he was in Alice Springs for 38 days. A 50 Mc. break also occurred on 8th November to VK4. 2JD worked 4BY, but could not QSO 4BY.

On 228 Mc. 2AX, Gawler, is using two watts to a 2J8 Tx and also a 2J8 Rx. Antenna is 12 elements. Les has been heard in Adelaide. He was worked from Mt. Canobank by 2XO. 50Q is also a newcomer to 30 Mc. 2GF on 288 is using a two half waves in phase antenna backed by a corner reflector. 2P is in Blackwood and should put out a good signal, having the help.

To all the v.h.f. gang, A Merry Xmas from v.h.f.ers in Victoria and hunting during the DX season and Contacts.

About Plug-In Coils

A useful point to remember about plug-in coils—whether for receiver or transmitter application—is the length of the lead from the termination of the winding to the pins of the plug-in coil. Sometimes the practice is to mount coil sockets on stand-off supports so that tuned circuit connections will be as short as possible. That is good practice, but often the coils themselves are constructed with unnecessarily long leads.

Many constructors wind the turns of wire for grid and anode coils in such

a position with the result that the grid windings may finish up somewhere near the top of the form. Thus, between the end of the windings and the pins of the plug-in coil there may be an inch or so of unwanted wire—a serious matter, especially at the higher frequencies of 14 to 30 Mc. Many tuned circuits fail to cover an intended range by treating coils in this manner.

In the case of coils intended for 20 metres, the actual coil may have only three or four turns, but inclusion of the long leads inside the form makes the coil equal almost to a five or six-turn coil.

The better way to go about coil winding is to arrange the windings as near to the pins as possible.

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VK2WJ	13	2	
VK4RY	2	2	
VK4YV	2	2	
VK4LS	1	1	
VK4DW	2	2	
VK4ER	2	2	
VK2PG	2	2	
VK2HR	2	2	
VK2HR	2	2	
VK2AEZ	10	1	
VK2XA	11	1	
VK2GM	12	1	
VK2CJ	14	1	
VK2ABC	2	2	

Tasmania's Third Successive Win

Congratulations to Tasmania on again winning the Remembrance Day Trophy. The "Apple Islands" certainly have a very fine record in this Contest, now having won the Trophy three years in succession.

Unfortunately, as in previous years, there was preliminary misunderstanding with respect to Rule 1—the duration of the Contest, but this was immediately rectified. It would be to the advantage of Federal Councillors and State Secretaries to make note of the fact that the Contest is of twenty-four hours' duration—unless otherwise altered at the 1952 Convention. When drawing up the Rules for the 1951 Remembrance Day Contest the Federal Contest Committee followed those of the previous year, not having been advised of the error therein, hence the time limit was shown as for 1950.

Some confusion was caused by the layout of the Official Log Sheets and most States agreed that this be taken into account when checking Logs and VK3 suggested that a new form be adopted for future Contests. No contestant has been disqualified on this account. As a matter of fact, all Logs received have been accepted although in some cases scores have been slightly altered.

In all 384 Logs were received, being an increase of 67 compared with 1950. VK3 almost doubled the number of Logs forwarded. VK4 knewas VK7 an increase of 13. Incidentally, the percentage of Logs received from Tasmania was over 50% of the Amateurs in that State. VK3 showed a considerable falling. VK3 and VK5 were much the same. VK3 Logs were not received until 13th September and the Contest Committee applied to the Federal Executive for a ruling as to whether they should be accepted or otherwise. F.E. ruled that they should be accepted. In view of this ruling, the Contest Committee decided to accept all Logs received provided they complied with the rules.

With reference to Logs generally, quite a number were very neatly typed and analysed. Some competitors did not bother to add them up at all, whilst others showed only a grand total on the last page. Very few signed to the effect that they had obeyed the P.M.C.'s Regulations. This no doubt, was brought about by the fact that the declaration on the Standard Log Sheet did not include these words.

The Contest Committee would like to thank those VKBs who participated in the Contest and helped to swell the score of the Mainland States.

It was rather unfortunate that the number of Logs received fell short by only one to enable the Territory to participate as a body for the Trophy.

Here are the first six stations in each State—

VK3	VK5	VK4
VK3ZJ 624	VK3ATN 581	VK4KW 518
VK3DO 613	VK3BD 500	VK4SE 511
VK3ZWH 506	VK3ALW 450	VK4HR 482
VK3ANR 477	VK3AM 424	VK4F 424
VK3AMV 539	VK3JE 418	VK4QL 444
VK3PA 530	VK3OM 408	VK4XG 428
Average 572	472	470
Bonus 46	43	39
618	515	509

Logs rec'd 87	86	64
Amv's 1091	947	307
Place, 1949 5	6	4
" 1950 4	5	3
" 1951 2	4	3

VK3	VK5	VK7
VK3LO 539	VK5RU 604	VK7LJ 538
VK5KN 452	VK5VM 480	VK7AJ 493
VK5CE 437	VK5MD 469	VK7B 459
VK5MD 437	VK5JL 418	VK7BH 428
VK5CN 435	VK5AD 287	VK7NC 401
VK5CO 404	VK5LJ 226	VK7JB 383
Average 451	425	461
Bonus 86	80	290
536	505	697

Logs rec'd 82	30	50
Amv's 327	195	93
Place, 1949 7	3	1
" 1950 3	2	1
" 1951 4	6	1

Some Conclusions From The Contest

The system of scoring must be again altered to enable the larger States to compete on a more equitable basis. As an example VK7 received a bonus of 240 points! The next highest bonus was VK4 with 99.

The Standard Log Sheet should be altered to remove any ambiguity regarding RST NR. Time QSO ended and QSL 5-R are superfluous. Participants be asked to help their Log! A copy of the Rules be attached to the Convention Minutes.

With reference to the system of scoring the Contest Committee have deliberately refrained from making any suggestions at this juncture. Recommendations will, of course, be placed before the next Convention but in the meantime the States should give this matter some thought. In the meantime here is food for thought: Instead of a ratio between the number of Logs received and the number of Amateurs in the Division why not substitute number of financial members?

VK2YL 86	VK3RV 52	VK3AXZ 19
VK3AMB 60	VK2ZT 51	VK2GN 15
VK3WT 59	VK3IC 51	VK3IC 15
VK3JF 59	VK3BT 51	VK3AFZ 14
VK3JF 57	VK2EU 50	VK2HX 14
VK3AAW 57	VK3APB 48	VK3RF 13
VK3VO 48	VK3OV 48	VK3OV 13
VK2PN 56	VK2PC 39	VK3ABO ---
VK3AGZ 54	VK2KR 37	VK2PQ ---
VK3AZ 53	VK3ANU 27	VK3AE ---
VK3ZQ 53	VK2JG 27	VK3AM 19

VICTORIA

VK3FH 370	VK3XU 194	VK3AD 70
VK3XB 399	VK3ARL 183	VK3ED 60
VK3PF 395	VK3JL 182	VK3LU 60
VK3HG 347	VK3G 177	VK3ABA 60
VK3DG 309	VK3ME 175	VK3AD 60
VK3AKR 308	VK3HT 175	VK3LN 60
VK3ALQ 306	VK3JL 175	VK3JL 60
VK3JH 299	VK3ZL 154	VK3AGF 60
VK3FU 292	VK3NR 147	VK3AM 60
VK3AMH 288	VK3JL 133	VK3JL 60
VK3ASB 288	VK3AGV 132	VK3JL 60
VK3ARV 246	VK3AJG 131	VK3HL 37
VK3PJ 225	VK3ZD 25	VK3JB 37
VK3VZ 224	VK3VZ 25	VK3JL 37
VK3ZA 216	VK3JF 119	VK3BI 37
VK3KC 210	VK3JF 116	VK3PL 37
VK3ZC 201	VK3AGD 116	VK3AT 37
VK3AH 194	VK3AC 108	VK3AK 37
	VK3APF 105	VK3JL 37
	VK3JL 105	VK3JL 37
	VK3ADW 101	VK3JL 37
	VK3W 100	VK3JL 37
	VK3TN 100	VK3JL 37
	VK3LS 100	VK3JL 37
	VK3HK 87	VK3JL 37
	VK3AMV 87	VK3AR 17
	VK3JL 87	VK3AM 17
	VK3JL 76	VK3KH 17
	VK3JL 76	VK3AG 14
	VK3JL 72	VK3JL 10
	VK3AHK 70	VK3JL 10

QUEENSLAND

VK4BT 372	VK4AL 80
VK4CC 358	VK4KP 58
VK4HD 354	VK4RH 58
VK4BQ 291	VK4HW 50
VK4CN 272	VK4CN 50
VK4DI 256	VK4GA 47
VK4WJ 240	VK4LE 46
VK4XJ 229	VK4BH 45
VK4NC 221	VK4FR 41
VK4PT 219	VK4FN 38
VK4BG 210	VK4FP 38
VK4FE 196	VK4KS 38
VK4FN 178	VK4CZ 38
VK4FJ 175	VK4DH 38
VK4XL 165	VK4AL 38
VK4KC 139	VK4YA 28
VK4FB 138	VK4WD 23
VK4AL 138	VK4AL 23
VK4WJ 129	VK4AW 17
VK4GH 117	VK4OA 17
VK4AF 111	VK4W 17
VK4HJ 106	VK4HA 17
VK4XR 94	VK4ZP 15
VK4IG 87	VK4PD 14
VK4RN 13	VK4RN 13
VK4MH 78	VK4OR 13
VK4SN 6	VK4KS 8
VK4G 6	VK4XP 6
VK4W 6	VK4W 6

SOUTH AUSTRALIA

VK5W 301	VK5BS 169
VK5W 287	VK5MS 154
VK5RG 278	VK5MZ 147
VK5HI 228	VK5EH 147
VK5FL 216	VK5FL 147
VK5FO 212	VK5DK 144
VK5LQ 201	VK5LD 139
VK5XK 198	VK5XK 139
VK5KU 194	VK5K 123
VK5CD 181	VK5FP 119
VK5DH 181	VK5LE 117
VK5W 170	VK5W 117
VK5DP 81	VK5TL 38
VK5BZ 80	VK5RK 37
VK5X 77	VK5NR 37
VK5N 73	VK5N 37
VK5J 63	VK5J 37
VK5MA 55	VK5CT 15
VK5W 50	VK5W 15
VK5LW 48	VK5ER 11
VK5DF 43	VK5FD 8

WESTERN AUSTRALIA

VK6AZ 227	VK6GU 55	VK6LL 24
VK6ZZ 183	VK6RV 50	VK6WZ 22
VK6W 145	VK6W 50	VK6W 22
VK6L 129	VK6GA 38	VK6PJ 21
VK6SA 82	VK6KJ 37	VK6MK 20
VK6W 80	VK6W 37	VK6KT 18
VK6RR 73	VK6LW 25	VK6RH 18
VK6BO 70	VK6AS 24	VK6RS 17

Tasmania Retains This Remembrance Day Trophy.

In addition to the six leading logs from each State, the following were also received to help swell the various States' totals and thus increase the bonus.

NEW SOUTH WALES

VK2ANN 526	VK2ATP 367	VK2DZ 130
VK2AJA 518	VK2AO 294	VK2AMD 118
VK2AH 484	VK2OW 287	VK2AN 114
VK2SH 486	VK2G 273	VK2ARV 114
VK2JU 421	VK2OP 352	VK2PV 113
VK2ACU 405	VK2BQ 361	VK2PD 113
VK2AD 396	VK2GN 361	VK2VH 96
VK2GW 397	VK2XO 251	VK2AA 82
VK2AB 387	VK2AF 248	VK2AJ 80
VK2BO 377	VK2AP 231	VK2V 80
VK2RA 372	VK2ASW 208	VK2AYH 80
VK2EO 367	VK2AYE 181	VK2ACD 80
VK2ADN 363	VK2AMD 177	VK2AAM 72
VK2Y 328	VK2AMP 72	VK2AH 71
VK2OT 321	VK2AM 152	VK2GI 68
VK2DY 313	VK2MF 121	VK2EL 68

TASMANIA

VKOTM 353 VKSRK 80 VKTKB 24
VKOTL 34 VKTJ 24 VKTJF 24
VKOTD 318 VKTJF 45 VKTWT 21
VKOTB 288 VKTJA 45 VKTJS 18
VKOTC 254 VKTJA 45 VKTJR 17
VKOTK 163 VKTWA 45 VKTJL 17
VKOTY 138 VKTCK 38 VKTAL 17
VKOTL 135 VKTSA 38 VKTJT 17
VKOTW 135 VKTSA 38 VKTJS 17
VKOTD 111 VKTLL 27 VKTGB 12
VKOTM 107 VKTAG 28 VKTJY 12
VKOTL 107 VKTJA 45 VKTJR 17
VKOTD 71 VKTJL 25 VKTJR 7
VKOTK 60 VKTJL 25 VKTJW 6
VKOTM 61 VKTJA 6

NEW GUINEA

VKOKX 478 VKHJ 23 VKSKT —
VKOGW 96 VKYPT 23

LISTENERS' SECTION

F. H. Price, 276 Stations.
B.E.R.S.186, E. Trebilcock, 175 stations.

A FEW COMMENTS

The first six stations in VKI topped 500 points and all came from outside the Sydney area, via country stations. VKGRU topped with 549 points, with 100 on c.w., and operated for 170 hours on 7, 14, and 28 Mc. Highest number in contact in one hour was 32, with 100 on c.w., with many occasions exceeded 25. VKGAZ, with 227 points, used phone exclusively on one band only. VKGLJ used c.w. on 5.5, 7, and 14 Mc. A feature of the VKG was the manner in which the scores tapered off from 804 down to 258, thus nullifying the splendid effort.

VKOKX did a splendid job, 184 contacts and 478 points using 5.5, 7 and 14 Mc. In addition VKOKX was used for several contacts. VKGLJ had 211 contacts, used three bands. VKTJA used phone only for 201 contacts in three bands. VKTJA and VKGB used phone and c.w. VKTJA, using 40 watts to a single 807 had 229 contacts for 561 points. VKGB, with 250 points, closed, clearly, out the distance. VKCOM gained all his points on phone. VKOLO did most of his on phone and sent in a very neat log. VKGBD showed the old-time how. VKCOM from Darwin added quite a deal of interest.

VKAKW, for Queensland, gained 818 points, all from phone, and was one of the few that used four bands. VKAQL also obtained his points from phone. VKAQL was strictly c.w. and a very neat log and was one of the few who signed to the effect that the P.M.G.'s Regulations had been observed.

VKOKX's letters were received. F. H. Price, s.w. from VKG, logged no less than 276 stations. Eric B.E.R.S.185 logged 175 stations, in all he logged a total of 866 stations some no less than 12 times.

—Federal Contest Committee.

CORRESPONDENCE

The opinions expressed in these letters are the individual opinions of the writer, and do not necessarily coincide with those of the publishers.

1 Collicie St., Albany, W.A.

Editor "A.R." Dear Sir,
As a reader of my mooring on six or seven where I believe there are big things brewing in the Big City once more. Some "Stool Pigeon" of the Federal Executive has brought up the matter of "exclusion of members" (what?) What colossal impudence, as if the W.A. Division could, for one moment, consider turning the Division of the highest standing in the States" into a mere "glorified Listeners' League".

Why be bothered assisting blokes to get their "tickets" and "exclusion" of them, and then the W.A. can pinch them or can it, and for how long? If, I mean when, it comes to a serious difference between the two bodies, which side will all these members, ex-Society, take? The answer is obvious.

Was this thing we now hear called "exclusion"? Was it the W.A.T.L.? Who instigated the W.A.T.L.? Was it instigated by a very few members of the Institute who were unable to "exclusion" of members? (What?) What colossal impudence, as if the W.A. Division could, for one moment, consider turning the Division of the highest standing in the States" into a mere "glorified Listeners' League".

Were these few members who instigated this break-away from the W.A. all engaged in wireless in some form or other (what?) This, gentlemen, is how some people think

a democratic system works. If you can't get a majority with you, just pull out and form another little group.

The Wireless Institute (even in this State) was not founded only by persons with transatlantic interests but by a number of people interested in the study of wireless. In former days the associate member was always there to do a job of work, both physically and in many other ways, in fact, there were more often there than some of the full members.

It is not so long ago that many members of the W.I.A. in W.A. did not even know that associate members existed anywhere; were they deliberately kept in ignorance?

The radio clubs were formed prior to this break-away. Why? I think because the W.I.A., at that time, would not provide classes for those associate members who desired to take the examination for A.O.C.F. Some members started the club idea and a number of people of them going for about thirty years. Good on you, Bert.

Who were those opposed to the classes? Close inquiry may find that they were some blokes who, a little later, instigated the break-away. Anyhow what's all the argument about? The easiest way to get over the matter of the unified constitution is for all those States who now have associate members to chuck them out and thus come into line with the minority. Isn't that the way the democracy works in some countries? The majority must, on no account, dictate to the smaller number, but must be guided by that use.

And speaking of people who don't know who the Federal Executive are. It wouldn't surprise me at all if a station in W.A. (whose signal could be heard in Victoria) went on 7 Mc. and called CQ Federal Executive. He would get a reply about six months earlier than if a station in Victoria on the same band called CQ W.A. Council! Thirpence, please, Max.

Yes, I know All this is none of my business for I am not a member of the W.I.A. But, Max, I would like to see the Institute in Western Australia straight up. Some of us have happy memories of the days when the associate member was not "without the pale."

I think it's good for honest men to let everybody know what "we" think of those "Glorified Listeners' League" on the other side of the desert.

—I. G. WILSON, VKELG.

Editor "A.R." Dear Sir,

The above letter has been referred, prior to publication, to this Division by Federal Executive. We desire to close the matter at once and in reply make the following remarks—

1. It is obvious that the comment and criticism by ELG refers to the contents of a circular which was sent to all members who were member, at his own expense, as an expression of his opinion of Constitutional and Federal matters, which have been fully aired and discussed by all members prior to the acceptance of our new Constitution.

2. This Division has accepted without one dissenting vote the Uniform Divisional Constitution, with some amendments, but including Association members.

3. In conclusion it is suggested that ELG, as a non-member of this Division, refrain from publishing such criticism when he does not know the full facts. The executive of this Division encourages criticism, constructive and otherwise from VKG members.

H. R. LANG, Hon. Secretary,
W.A. Division, W.I.A.

AMATEUR CALL SIGNS

FOR MONTH OF SEPTEMBER, 1961

ADDITIONS

VK— New South Wales
2LP—L. R. Burston, R.A.A.F. Station, Williams-town.
3OK—J. T. Lake, 48 The Promenade, Sans Souci.
Victoria
3EY—K. Corcoran, 5 Albert St., Paece Vale.
3YH—R. Fisher, 13 Campbell's Crn., Ballarat.
3ALL—P. L. Lempiers, 5 Illawarra Crn., Toorak, Meib. (Portable).

QUEENSLAND

4BL—W. A. Easterling, c/o A.O.C.A. Thursday Island.
4GF—D. A. Crowley, Hill St., Cooper's Plains, Brisbane.
4SF—S. J. Ford, Warwick Rd., Churchill, Ipswich.
4VO—A. J. Wrenbeck, Glencoe, via Gympie Junction.

Tasmania

TXG—G. N. Kerrison, 47 View St., Dymynde, Hobart.

Territories

1SW—S. J. Wyatt, Macquarie Island.

ALTERATIONS

VK— New South Wales
2AG—Pacific Highway, Derwatts
2BQ—Richmond Street, Tumut.
2C—13 East Drive, Bexley North, Sydney.
2K—13 Craig Street, Bankstown.
2JE—3 Asher St., Georgetown, Waratah, N.M.
2TH—85 Bondi Road, Bondi.
2T2—12 Richmond Avenue, Dee Why.

Victoria

3BH—Corner Ellendale Rd. and Princes Highway, Moorabbin Fair.
3DC—8 Irlbarra Rd., Canterbury, E.Y.
3IZ—Commercial Hotel, Yarram.
3PZ—27 Laurie Street, Newport, W.V.
3T2—73 Craig Street, Elwood, S.V.
3UC—15 Myrtle Road, East Camberwell.
3XV—13 Reserve Road, Beaumaris, S.V.
4AD—13 St. Andrews St., Camberwell, E.S.
4AC—Derwent House, Longthorpe.
4ADF—13 St. Andrews St., Camberwell, E.S.

Queensland

4PB—Timbury Street, Moorooka, Brisbane.
4RA—111 Old Scarborough Rd., Scarborough.
4RJ—Methodist Hall, Harcourt Street, New Farm, Brisbane.

South Australia

5DE—Barton Trans. Aust. Railway, Barton, S.A.
5HP—c/o Salisbury Hotel, Salisbury.

Western Australia

6B—101 Fitzgerald Street, Geraldton.
6CK—c/o C.I.C. Dept. Civil Aviation, Halls Creek.
6GS—c/o National Regional Station BWA, Wagin.

Tasmania

7CL—33 Welman Street, Launceston.
7GM—44 Douglas Street, Launceston.

Territories

8PZ—Dept. Civil Aviation, Madagat, T.N.G.

DELETIONS FOR AUGUST AND SEPTEMBER

VK— New South Wales
2ND—Cancelled.
2ACW—Cancelled.
2ADJ—Cancelled.
2AJT—Cancelled.
Victoria
3EL—Cancelled.
3OT—Cancelled.
3LI—Cancelled.
3NP—Cancelled.
3SC—Cancelled.
3SV—Cancelled.
3VU—Cancelled.
3VU—Cancelled; now operating under VKGB.
3AJJ—Cancelled.
3AMH—Cancelled.
3AOH—Cancelled.
3ARN—Cancelled; now operating under VKGB.
Queensland
4AR—Cancelled.
4DJ—Cancelled.
4KH—Cancelled; now operating under VKGB.
4KJ—Cancelled.
4KC—Cancelled; now operating under VKJKT.
4SR—Cancelled.
4ZO—Cancelled.

Queensland

5BJ—Cancelled; now operating under VKLATW.
5C—Cancelled; now operating under VK4GF.
5LP—Cancelled.
5ML—Cancelled.
5NL—Cancelled.
5PL—Cancelled.
5RB—Cancelled.
5SR—Cancelled.

South Australia

6AD—Cancelled.
6AF—Cancelled; now operating under VK3AGZ.
6AN—Cancelled.
6AU—Cancelled.
6DA—Cancelled.
6RM—Cancelled.

Tasmania

7MC—Cancelled.
Territories
1RB—Cancelled.
1YM—Cancelled.
8TY—Cancelled.

RAAF

VACANCIES FOR RADIO ENGINEER OFFICERS

The Royal Australian Air Force invites applications from suitably qualified men for appointment to Permanent and Short Service Commissions as Radio Engineer Officers.



FOR A PERMANENT COMMISSION applicants must be normally not more than 25 years of age, and hold a University degree in Engineering (preferably electrical) or in Science (preferably in physics, mathematics, and electronics), or hold a diploma in Engineering (preferably electrical or radio) which gives complete exemption from the Associate Membership Examination of the Institution of Engineers, Australia. Diploma candidates must also have not less than two years' experience in engineering after completion of diploma or have had war service in any of His Majesty's Forces, or be qualified to commence the first year of study for a University degree in Engineering or Science.

FOR A SHORT SERVICE COMMISSION (of 4 years with an extension for any period not exceeding three years). Applicants should be under 45 years and have held an appropriate technical appointment as an officer in His Majesty's Services or have completed an apprenticeship or comparable training in radio engineering, followed by at least five years' experience in that trade. Claims of applicants who have held Warrant or N.C.O. rank in a technical mustering will be given special consideration. Officers serving on Short Service Commissions are eligible for Permanent Commissions. All applicants must be British subjects of substantially European descent.

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Flight Lieutenant	45/9	55/9
Squadron Leader	56/3	66/3
Wing Commander	71/3	81/3
Group Captain	86/9	96/9

APPLICANTS with former commissioned service in His Majesty's Forces will be considered for appointment in his former rank or such rank as may be commensurate with his qualifications and experience. Other candidates will normally be offered the rank of Pilot Officer but higher rank may be determined depending upon qualifications, age, and other attributes. Officers are required to contribute to a pension scheme which provides a generous retiring allowance and covers invalidity or death during service.

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tendence. Several shacks were inspected and from comments received, the North West Division, although few in number, take a very active part in Amateur Radio. Congratulations to TRB on passing his second class operator's ticket. Brian is now busy preparing to get the other ticket which we hope will be all right. TLE also has been preparing for the examination, preparatory to gaining his first-class certificate. F.B. signal heard. TLE had trouble with aerials during a recent heavy blow which have now been replaced with several new long wires, apparently with quite a lot more gain than previously. TKA now experiencing h.c.t. trouble which has retarded activity to a great degree. Trust this is soon overcome Ken.

Seen purchasing some new amplifier equipment in the town. TCT TRJ also seen spending some of the "house keeping" money on radio parts. Several members of the TRS Signals Radio Club visited the mainland for a stay of a week or so. TAL is due to go shortly also which will prove a break for our busy GSL Manager. A new Ham to join the club in TFM. A comprehensive test was made recently throughout Tasmania in an effort to check radio communication throughout the State. Parties were at Queenstown, Devonport, St. Helens, Southport and Hobart, operators at each centre being well known Amateurs. Heard 70K on 40 mc during the month on c.w. Bob must have known I was listening as he slowed down to my model speed, nice copy Bob.

TRXJ still active on 40 and 30 mc. New beam working 2.b. TJJ seen recently but is not active at late. Bert Clark vows he is going to give radio away owing to the present heavy taxation. Conclude now with the 100 is TDW, active again on 40 mc. TNC active still with quite a choice lot of DX cards being received.

Our November meeting was held on the 7th of the month, the lecture was given by TJJ and the subject being photography which was apparently is nearly as expensive as radio to pursue. Meeting concluded at approx. 10 p.m. Quite a collection of radio parts will, it is hoped, be auctioned at the December meeting. If you are desirous of purchasing some good radio equipment cheap, don't forget, be there or else you may miss out. Len, our guest, was seriously thinking of taking up his new job professionally.

NORTHERN TASMANIA ZONE
TLE had had advice from George Elliott GSL that he is leaving Britain to live in Canada and should soon be heard with a VE2 call. George, who is a very well known to many VK Amateurs, was undecided whether to come to Australia or Canada, but VE land eventually won out. TRK and ZL have been very busy in recent contests and are very pleased with some of the rare DX which came to light. From TRQ comes the news that the six meter band has been opening up for Interstate contacts. Len is still conducting tests with his 578 Mc. gear with associate Percy Crawford on the receiving end. Local building is still occupying all the spare time of TRB who now has packed away his Ham gear "for the duration," but uses his Rx gear for a number of songs. Henry TRV has been our last meeting came TDS with the news of the doings in "the wide open spaces." Hope to see you at more meetings Hugh. The welcome was also extended to a visitor from VK5, like wise to Des Gray who is interested in the zone. Associate Grimes Nicholson, who was to have brought along tape recording, but for one reason or another, caught up with the "flu and couldn't make the meeting. However TKW was able to bring some of the more humorous episodes of the P.I. survey made by TRB and himself—they were chased by bulls that turned out to be paddy calves and at one time were nearly locked in a cemetery. Right in the thick of it, TXL who went along to some local auction rooms recently and picked up some nice disposals for a number of days. Henry TRV has been getting his boat ready for summer holidays on the river and is hoping to have a portable operation on 40.

Heard that TTE now has his home recording outfit going well and puts a few live sessions on disc now and then. TANK, we understand, is looking out for any subscribers to the splendid duo so hasn't been active on the air lately. Keep up the good work Les.

NORTH WESTERN ZONE
We were all very sorry that the Convention which was to have been held early in November had to be cancelled on account of the severe lack of interest in the State, but at our last monthly meeting we were pleased to welcome the State Secretary who paid us a visit. TRB is putting out a very nice signal now with his QROE/40 in the final and I believe you have all the rays working now Jan. Our job is to do up to Doug for the splendid job he is doing as Zone Secretary.

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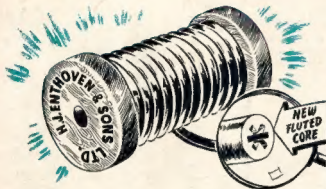
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				30- IN.	36- IN.	30- IN.	36- IN.	
10	130	2.012	33.6	33.6	102	144.8	28.0	36.1
11	160	2.012	33.6	33.6	102	144.8	28.0	36.1
12	190	2.012	33.6	33.6	102	144.8	28.0	36.1
13	220	2.012	33.6	33.6	102	144.8	28.0	36.1
14	250	2.012	33.6	33.6	102	144.8	28.0	36.1
15	280	2.012	33.6	33.6	102	144.8	28.0	36.1
16	310	2.012	33.6	33.6	102	144.8	28.0	36.1
17	340	2.012	33.6	33.6	102	144.8	28.0	36.1
18	370	2.012	33.6	33.6	102	144.8	28.0	36.1
19	400	2.012	33.6	33.6	102	144.8	28.0	36.1
20	430	2.012	33.6	33.6	102	144.8	28.0	36.1
21	460	2.012	33.6	33.6	102	144.8	28.0	36.1
22	490	2.012	33.6	33.6	102	144.8	28.0	36.1
23	520	2.012	33.6	33.6	102	144.8	28.0	36.1
24	550	2.012	33.6	33.6	102	144.8	28.0	36.1
25	580	2.012	33.6	33.6	102	144.8	28.0	36.1
26	610	2.012	33.6	33.6	102	144.8	28.0	36.1
27	640	2.012	33.6	33.6	102	144.8	28.0	36.1
28	670	2.012	33.6	33.6	102	144.8	28.0	36.1
29	700	2.012	33.6	33.6	102	144.8	28.0	36.1
30	730	2.012	33.6	33.6	102	144.8	28.0	36.1
31	760	2.012	33.6	33.6	102	144.8	28.0	36.1
32	790	2.012	33.6	33.6	102	144.8	28.0	36.1
33	820	2.012	33.6	33.6	102	144.8	28.0	36.1
34	850	2.012	33.6	33.6	102	144.8	28.0	36.1
35	880	2.012	33.6	33.6	102	144.8	28.0	36.1
36	910	2.012	33.6	33.6	102	144.8	28.0	36.1
37	940	2.012	33.6	33.6	102	144.8	28.0	36.1
38	970	2.012	33.6	33.6	102	144.8	28.0	36.1
39	1000	2.012	33.6	33.6	102	144.8	28.0	36.1
40	1030	2.012	33.6	33.6	102	144.8	28.0	36.1
41	1060	2.012	33.6	33.6	102	144.8	28.0	36.1
42	1090	2.012	33.6	33.6	102	144.8	28.0	36.1
43	1120	2.012	33.6	33.6	102	144.8	28.0	36.1
44	1150	2.012	33.6	33.6	102	144.8	28.0	36.1
45	1180	2.012	33.6	33.6	102	144.8	28.0	36.1
46	1210	2.012	33.6	33.6	102	144.8	28.0	36.1
47	1240	2.012	33.6	33.6	102	144.8	28.0	36.1
48	1270	2.012	33.6	33.6	102	144.8	28.0	36.1
49	1300	2.012	33.6	33.6	102	144.8	28.0	36.1
50	1330	2.012	33.6	33.6	102	144.8	28.0	36.1
51	1360	2.012	33.6	33.6	102	144.8	28.0	36.1
52	1390	2.012	33.6	33.6	102	144.8	28.0	36.1
53	1420	2.012	33.6	33.6	102	144.8	28.0	36.1
54	1450	2.012	33.6	33.6	102	144.8	28.0	36.1
55	1480	2.012	33.6	33.6	102	144.8	28.0	36.1
56	1510	2.012	33.6	33.6	102	144.8	28.0	36.1
57	1540	2.012	33.6	33.6	102	144.8	28.0	36.1
58	1570	2.012	33.6	33.6	102	144.8	28.0	36.1
59	1600	2.012	33.6	33.6	102	144.8	28.0	36.1
60	1630	2.012	33.6	33.6	102	144.8	28.0	36.1
61	1660	2.012	33.6	33.6	102	144.8	28.0	36.1
62	1690	2.012	33.6	33.6	102	144.8	28.0	36.1
63	1720	2.012	33.6	33.6	102	144.8	28.0	36.1
64	1750	2.012	33.6	33.6	102	144.8	28.0	36.1
65	1780	2.012	33.6	33.6	102	144.8	28.0	36.1
66	1810	2.012	33.6	33.6	102	144.8	28.0	36.1
67	1840	2.012	33.6	33.6	102	144.8	28.0	36.1
68	1870	2.012	33.6	33.6	102	144.8	28.0	36.1
69	1900	2.012	33.6	33.6	102	144.8	28.0	36.1
70	1930	2.012	33.6	33.6	102	144.8	28.0	36.1
71	1960	2.012	33.6	33.6	102	144.8	28.0	36.1
72	1990	2.012	33.6	33.6	102	144.8	28.0	36.1
73	2020	2.012	33.6	33.6	102	144.8	28.0	36.1
74	2050	2.012	33.6	33.6	102	144.8	28.0	36.1
75	2080	2.012	33.6	33.6	102	144.8	28.0	36.1
76	2110	2.012	33.6	33.6	102	144.8	28.0	36.1
77	2140	2.012	33.6	33.6	102	144.8	28.0	36.1
78	2170	2.012	33.6	33.6	102	144.8	28.0	36.1
79	2200	2.012	33.6	33.6	102	144.8	28.0	36.1
80	2230	2.012	33.6	33.6	102	144.8	28.0	36.1
81	2260	2.012	33.6	33.6	102	144.8	28.0	36.1
82	2290	2.012	33.6	33.6	102	144.8	28.0	36.1
83	2320	2.012	33.6	33.6	102	144.8	28.0	36.1
84	2350	2.012	33.6	33.6	102	144.8	28.0	36.1
85	2380	2.012	33.6	33.6	102	144.8	28.0	36.1
86	2410	2.012	33.6	33.6	102	144.8	28.0	36.1
87	2440	2.012	33.6	33.6	102	144.8	28.0	36.1
88	2470	2.012	33.6	33.6	102	144.8	28.0	36.1
89	2500	2.012	33.6	33.6	102	144.8	28.0	36.1
90	2530	2.012	33.6	33.6	102	144.8	28.0	36.1
91	2560	2.012	33.6	33.6	102	144.8	28.0	36.1
92	2590	2.012	33.6	33.6	102	144.8	28.0	36.1
93	2620	2.012	33.6	33.6	102	144.8	28.0	36.1
94	2650	2.012	33.6	33.6	102	144.8	28.0	36.1
95	2680	2.012	33.6	33.6	102	144.8	28.0	36.1
96	2710	2.012	33.6	33.6	102	144.8	28.0	36.1
97	2740	2.012	33.6	33.6	102	144.8	28.0	36.1
98	2770	2.012	33.6	33.6	102	144.8	28.0	36.1
99	2800	2.012	33.6	33.6	102	144.8	28.0	36.1
100	2830	2.012	33.6	33.6	102	144.8	28.0	36.1
101	2860	2.012	33.6	33.6	102	144.8	28.0	36.1
102	2890	2.012	33.6	33.6	102	144.8	28.0	36.1
103	2920	2.012	33.6	33.6	102	144.8	28.0	36.1
104	2950	2.012	33.6	33.6	102	144.8	28.0	36.1
105	2980	2.012	33.6	33.6	102	144.8	28.0	36.1
106	3010	2.012	33.6	33.6	102	144.8	28.0	36.1
107	3040	2.012	33.6	33.6	102	144.8	28.0	36.1
108	3070	2.012	33.6	33.6	102	144.8	28.0	36.1
109	3100	2.012	33.6	33.6	102	144.8	28.0	36.1
110	3130	2.012	33.6	33.6	102	144.8	28.0	36.1
111	3160	2.012	33.6	33.6	102	144.8	28.0	36.1
112	3190	2.012	33.6	33.6	102	144.8	28.0	36.1
113	3220	2.012	33.6	33.6	102	144.8	28.0	36.1
114	3250	2.012	33.6	33.6	102	144.8	28.0	36.1
115	3280	2.012	33.6	33.6	102	144.8	28.0	36.1
116	3310	2.012	33.6	33.6	102	144.8	28.0	36.1
117	3340	2.012	33.6	33.6	102	144.8	28.0	36.1
118	3370	2.012	33.6	33.6	102	144.8	28.0	36.1
119	3400	2.012	33.6	33.6	102	144.8	28.0	36.1
120	3430	2.012	33.6	33.6	102	144.8	28.0	36.1
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122	3490	2.012	33.6	33.6	102	144.8	28.0	36.1
123	3520	2.012	33.6	33.6	102	144.8	28.0	36.1
124	3550	2.012	33.6	33.6	102	144.8	28.0	36.1
125	3580	2.012	33.6	33.6	102	144.8	28.0	36.1
126	3610	2.012	33.6	33.6	102	144.8	28.0	36.1
127	3640	2.012	33.6	33.6	102	144.8	28.0	36.1
128	3670	2.012	33.6	33.6	102	144.8	28.0	36.1
129	3700	2.012	33.6	33.6	102	144.8	28.0	36.1
130	3730	2.012	33.6	33.6	102	144.8	28.0	36.1
131	3760	2.012	33.6	33.6	102	144.8	28.0	36.1
132	3790	2.012	33.6	33.6	102	144.8	28.0	36.1
133	3820	2.012	33.6	33.6	102	144.8	28.0	36.1
134	3850	2.012	33.6	33.6	102	144.8	28.0	36.1
135	3880	2.012	33.6	33.6	102	144.8	28.0	36.1
136	3910	2.012	33.6	33.6	102	144.8	28.0	36.1
137	3940	2.012	33.6	33.6	102	144.8	28.0	36.1
138	3970	2.012	33.6	33.6	102	144.8	28.0	36.1
139	4000	2.012	33.6	33.6	102	144.8	28.0	36.1
140	4030	2.012	33.6	33.6	102	144.8	28.0	36.1
141	4060	2.012	33.6	33.6	102	144.8	28.0	36.1
142	4090	2.012	33.6	33.6	102	144.8	28.0	36.1
143	4120	2.012	33.6	33.6	102	144.8	28.0	36.1
144	4150	2.012	33.6	33.6	102	144.8	28.0	36.1
145	4180	2.012	33.6	33.6	102	144.8	28.0	36.1
146	4210	2.012	33.6	33.6	102	144.8	28.0	36.1
147	4240	2.012	33.6	33.6	102	144.8	28.0	36.1
148	4270	2.012	33.6	33.6	102	144.8	28.0	36.1
149	4300	2.012	33.6	33.6	102	144.8	28.0	36.1
150	4330	2.012	33.6	33.6	102	144.8	28.0	36.1
151	4360	2.012	33.6	33.6	102	144.8	28.0	36.1
152	4390	2.012	33.6	33.6	102	144.8	28.0	36.1
153	4420	2.012	33.6	33.6	102	144.8	28.0	36.1
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